

PROCEEDINGS OF THE ROYAL ENTOMOLOGICAL SOCIETY OF LONDON

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ORDINARY MEETING

WEDNESDAY, 2nd NOVEMBER, 1960, at 5.30 p.m. (Tea 5 p.m.)

AGENDA

1. Confirmation of the Proceedings of the Ordinary Meeting held on 5th October, 1960.
2. Recommendations of candidates for Fellowship. First reading.
3. Recommendations of candidates for Fellowship. Second reading.
4. Announcement of election of new Fellows.
5. Additions to the Library [see p. 27].
6. Admission of Fellows.
7. Exhibits.
8. Communications.

1. The Hon. Miriam Rothschild and Mr. P. Pheeny (a visitor)

Investigation of the warning scents of insects by gas chromatography.

[ABSTRACT]

Gas-liquid chromatography is capable of separating and analysing minute quantities (fractions of a microgram) of volatile materials, and thus has application as a tool in entomological research. A brief outline of the experimental techniques will be presented, together with an account of some preliminary work on the more volatile secretions of insects, including those from *Arctia caja* (the Garden Tiger Moth) and *Coccinella* spp.

2. Professor G. C. Varley and Mr. G. R. Gradwell

The effect of pupal parasites and predators on the winter moth, *Operophtera brumata* (L.).

[ABSTRACT]

Winter moth has been studied at Wytham, Berks., since 1949 and in the same year it was recognised as a defoliator of fruit and forest trees in Nova Scotia. Already parasites collected in Europe have been liberated in Canada in the hope of establishing biological control.

We find that even the commonest larval parasite at Wytham (the tachinid *Cyzenis albicans* (Fallén)) plays only a minor part in population changes of winter moth, perhaps due to hyperparasitism.

The effects of pupal parasites and predators have been underestimated by us and other workers in the past. A high proportion of winter moth pupae seem to be killed by *Cratichneumon culex* (Mueller) and by the larvae of the rove beetle *Philonthus decorus*

(Grav.). The effect of moles and wood mice may also be very large. Taken as a whole the mortality in the pupal stage is much higher where winter moth pupae are numerous and this may be very important in population regulation.

NOTICES

The next meeting will be held on *Wednesday, 7th December, 1960*, when two films will be shown.

(1) The biological control of insects. Prepared by C.S.I.R.O., Canberra, and introduced by **Mr. F. Wilson**.

(2) The biological control of Tsetse flies. Introduced by **Mr. W. H. Potts**.

PROCEEDINGS OF THE ORDINARY MEETING HELD ON 5TH OCTOBER, 1960

Dr. B. P. UVAROV, C.M.G., F.R.S., President, in the Chair

Present, 95 Fellows and 38 Visitors

Before the meeting opened the President extended a welcome to Mrs. Feliksiak, Librarian of the Zoological Institute of the Polish Academy of Sciences, Warsaw, and to Professor Utida of the University of Kyoto, Japan.

The minutes of the meeting held on 6th July, 1960, were confirmed and signed by the President.

The names of the following candidates for election were read for the first time : Mr. Richard Robinson Askew, B.Sc. ; Mr. John Nafford Brady, B.A. ; Dr. Moshe Calderon, M.Sc., Ph.D. ; Mr. Michael John Cotton, B.Sc. ; Mr. Patrick Stuart Dale ; Mr. Kenneth Charles Durrant ; Mr. Keith Murray Harris ; Mr. Leonard Hill, B.Sc. ; Mr. Ting-Huan Hsiao ; Mr. David Jacques ; Dr. Eugeniusz Judenko, Ph.D. ; Mr. John Alexander MacGregor ; Mr. Mohd Shafi Malik, B.A. ; Dr. Gregory Joseph Peakin ; Mr. Walter Petana ; Mr. Ezekiel Rivnay ; Dr. Basil John Shepstone, D.Sc. ; Mr. Yow Cheong Siew, M.Sc. ; and Mrs. Molly Thomas.

For the second time (taken as read) : Mr. Douglas Stuart Anderson, B.Sc. ; Professor Robert Earl Lewis ; Mr. Max W. McFadden ; Mr. John Dunell Handman ; Mr. George Murdie ; Dr. Lewis J. Stannard ; Mr. John Summerton ; Mr. Saieduz Zafar Varcie, B.Sc. ; and Mr. John Charles Watt.

The Secretary read the names of the following newly elected Fellows of the Society : Mr. Edwin Dharmaraju, College of Agricultural Research, Bapatla, Andhra Pradesh, India ; Dr. Derek Anthony Duckhouse, B.Sc., Ph.D., University of Adelaide, South Australia ; Mr. Radheshyam Gokulpure, Regional Field Research Station for Lac, Damoh, M.P., India ; Dr. Avinash Chandra Mathur, Regional Research Laboratory, Jammu-Tawi, Kashmir, India ; Dr. Peter Lamont Miller, Makerere College, P.O. Box 262, Kampala, Uganda ; and Mr. D. C. Swan, M.Sc., Waite Agricultural Research Institute, Adelaide, South Australia.

Thanks were voted to donors of gifts to the Library since the last meeting.

Mr. C. L. Bell, Mr. H. J. Berman, Mr. A. E. Burras, Mr. D. J. Galley, Mr. L. K. H. Goma, Professor Brian Hocking, Mr. M. Rafiq Khan, and Mr. D. C. Swan signed the Obligation Book and were admitted Fellows of the Society.

Mr. A. T. Thompson exhibited specimens of *Syrphus vitripennis* Meigen and *S. ribesii* L. taken (in the ratio of about 10 : 1) from large numbers flying in a south-westerly direction at Ilford on 30th July, 1960. Observation and counting had been facilitated by the fact that the insects were flying through a gap of only five yards between his house and garage which, together with a line of trees, otherwise formed a forty-yard obstacle in their path. The insects were passing at rates up to over 200/minute and the movement continued daily until 4th August, and on four days between 6th and 17th.

The flight was confirmed on a wider front locally, and as far away as Hyde Park on its course, but the difficulty of seeing it away from the "gap" suggested that such mass migrations of hover-flies may occur fairly frequently and pass unnoticed. The best vantage points had been fences and low hedges across the line of flight.

Professor Brian Hocking gave a paper on some aspects of aggregation in insects, an abstract of which appeared on page 21.

In the discussion which followed the President commented on Professor Hocking's observation that restlessness led to aggregation; he suggested that it could have the opposite effect. Professor Hocking replied that restlessness in cockroaches resulted from isolation; they were inactive when aggregated.

Mr. L. P. Lefkovitch suggested that the work of L. B. Smith quoted by Professor Hocking [Population dynamics of *Cryptolestes ferrugineus* (Steph.) (Coleoptera: Cucujidae), thesis for Ph.D., University of Nottingham, 1959] did not really support his arguments for the benefits of association in this particular species, and that similar work he had himself carried out in *Cryptolestes turcicus* (Grouvelle) was more evidence against this view since survival, rate of development and adult weight were reduced (contrasting with his results on *Musca*) when density was increased or when individual larvae were provided with smaller and smaller quantities of food. He mentioned that his observations suggested, although not clearly, that in *C. turcicus* there appeared to be an optimal condition in which larvae when provided with between 25-50 mg. showed their greatest rates of development, greatest weights and greatest survival.

Mr. Lefkovitch also observed that Smith demonstrated very clearly that cannibalism occurred even at comparatively low densities and asked whether Professor Hocking considered this to be an example of "intra-specific combat". In replying to these comments Professor Hocking agreed it was a little awkward and that all species did not necessarily show these effects so clearly. He felt that cannibalism was an example of "intra-specific combat".

Dr. J. MacLeod suggested that there might be some confusion between the insects' awareness of each other and aggregation. His own work on the blowfly indicated that they were not attracted to each other but to a common source of attraction.

Mr. M. J. Way said that Dr. J. S. Kennedy had made a somewhat similar observation for aphids, which appeared to be attracted to the most nutritious part of a plant. In *Aphis fabae* (Scop.) there was an optimum density in aggregation, above which adverse effects became apparent.

Mr. C. L. Bell showed a film on the life history of the Marsh Fritillary, *Euphydryas aurinea* (Rott.).

PAUL FREEMAN, *Honorary Secretary.*

ADDITIONS TO THE LIBRARY

Presented

[Borkhsenius, H. S. *Nasekomiue khobotnuie. Podotryad cherbetz i shchitovki (Coccoidea).*] 8vo. Moscow & Leningrad, 1960. [*Fauna S.S.S.R.* (n.s.) 77.]

[Academy of Sciences of the U.S.S.R., by Exchange.]

Costa Lima, A. da. *Insetos do Brasil.* Vol. 11. *Hymenopteros.* 1a. 8vo. Escola Nacional de Agronomica, Brazil, 1960. [The author.]

[Ghujevich, A. V. *Srovosushchie mokretzui (Diptera, Heleidae).*] 8vo. Moscow & Leningrad, 1960. [*Fauna S.S.S.R.* 72.] [Zoological Institute of the Academy of Sciences, Leningrad.]

Insects of Hawaii. Vol. 10. *Diptera; Nematocera-Brachycera*, by D. Elmo Hardy. 8vo. Honolulu: University of Hawaii Press, 1960. [The Publishers.]

Linsley, E. Gorton. *Ethology of some bee and wasp killing robber flies of Southeastern Arizona and Western New Mexico. (Diptera: Asilidae).* *Univ. Calif. Publ. Ent.* 16: 357-392, 1960. [The Publishers.]

- Marr, J. E. & Shipley, A. E. [Eds.]. *Handbook of the natural history of Cambridgeshire*. 8vo. Cambridge, 1904. [Mr. W. H. Potts.]
- Morrel, R. *Common Malayan Butterflies*. 8vo. London: Longmans Pr., 1960. [The Publishers.]
- Wilson, F. *A review of the biological control of insects and weeds in Australia and Australian New Guinea*. 8vo. Commonwealth Agricultural Bureaux, 1960. [The Publishers.]

Purchased

- Campbell, J. A. & Pelham-Clinton, E. C. A taxonomic review of the British species of "Culicoides" Latreille (Diptera: Ceratopogonidae). *Proc. roy. Soc. Edinb.* (B) 67: 181-302, 1960.
- Ford, E. B. *Mendelism and Evolution*. 7th edition. 8vo. London: Methuen, 1960.
- Grandi, M. *Fauna d'Italia*. Vol. 3. *Ephemeroidea*. 8vo. Bologna, 1960.
- Guido, A. S. & others. *Investigaciones sobre Acridoideos del Uruguay*. 8vo. Montevideo, 1958.
- Malies, H. M. *Applied microscopy and photomicrography*. 8vo. London: Fountain Press, 1959.
- Stach, J. *The Apterygotan fauna of Poland in relation to the world-fauna of this group of insects. Tribe Orchesellini*. Vol. 8. 8vo. Poland: Polska Academia Nauk, 1960.
- Stichel, W. *Illustrierte Bestimmungstabellen der Wanzen. II. Europa. (Hemiptera-Heteroptera Europae)* Vol. 3, Hft. 12; Vol. 4, Hft. 14. 8vo. Berlin-Hermsdorf, 1960.

In addition separates have been presented by the United States Department of Agriculture; Dr. H. E. Hinton; Commonwealth Institute of Entomology; West African Timber Borer Research Unit; Professor C. M. Biezanko; Dr. E. de Cerqueira Falcão; Department of Agriculture, Rhodesia; Dr. D. J. Lewis; American Entomological Society; Department of Entomology, Rothamsted Experimental Station; D.S.I.R., Auckland; Professor J. L. Cloudsley-Thompson; Mr. C. E. Dyte; Mr. B. L. Sage; Dr. M. Chujo; and the Forest Research Institute, Dehra Dun, India.